C-6.2 Compare solubility of various substances in different solvents (including polar and nonpolar solvents and organic and inorganic substances).

Revised Taxonomy Level 2.6 Compare conceptual knowledge

Students did not study this concept in physical science

It is essential for students to

- Understand the observation that "like dissolves like"
  - compare polar and nonpolar solvents in terms of
    - Structure
    - Organic vs. inorganic substance
    - Common examples
- Predict conditions which favor solubility of a particular solute in a given solvent based on
  - The structure of the solvent
  - The structure of the solute
  - The temperature
  - The pressure
- Give examples of solutions composed of substances which exist in various phases at room temperature.
  - Gas dissolved in gas
  - Gas dissolved in liquid
  - Gas dissolved in solid
  - Liquid dissolved in liquid
  - Liquid dissolved in solid
  - Solid dissolved in solid

Assessment

As stated in the indicator, the major focus of assessment is to compare (detect correspondences) in the degree to which various solutes will dissolve in various solvents based on the factors which influence solubility. Because the indicator is written as conceptual knowledge, assessments should require that students understand the "interrelationships among the basic elements within a larger structure that enable them to function together." In this case, assessments must show that students understand not only the way that each factor affects solubility but also the reasons that each factor affect solubility.